CLAIMS

1. A method for ensuring audio safety in an audio device, comprising the steps of:

outputting an acoustic output signal with a processor;

monitoring the acoustic output signal;

feeding the monitored acoustic output signal to an analog safety circuit; and

adjusting from a first level to a second level the acoustic output signal with the analog safety circuit when the first level of the acoustic output signal reaches a predetermined safety threshold, wherein the monitoring, feeding and adjusting steps enable the audio device to have an output capacity that is capable of driving the acoustic output signal to a sound pressure level above the predetermined safety threshold.

2. The method according to claim 1, further comprising the step of signaling the processor from the analog safety circuit when the acoustic output signal moves from the first level to the second level.

3. The method according to claim 1, wherein the adjusting the acoustic output signal with the analog safety circuit step comprises attenuating the acoustic output signal with the analog safety circuit such that the second level is lower than the first level.

4. The method according to claim 1, further comprising the step of returning the acoustic output signal to a safety level that is below the predetermined safety threshold but higher than the second level once the acoustic output signal is adjusted to the second level.

5. The method according to claim 4, further comprising the step of holding the acoustic output signal at least substantially at the second level for a predetermined amount of time once the acoustic output signal is adjusted to the second level.

6. The method according to claim 1, further comprising the steps of:

when the acoustic output signal is adjusted to the second level, further adjusting with the processor the acoustic output signal to cause the acoustic output signal to move to a third level;

adjusting with the analog safety circuit the acoustic output signal to cause the acoustic output signal to move to at least one of the second level and an intermediate level; and

ramping with the processor the acoustic output signal to cause the acoustic output signal to move to a safety level that is above the second level and the intermediate level but below the predetermined safety threshold.

7. The method according to claim 1, wherein the monitoring the acoustic output signal step comprises monitoring the acoustic output signal with a microphone positioned adjacent to a speaker of the audio device.

8. A system for ensuring safety in an audio device, comprising:

a processor, wherein the processor is programmed to output an acoustic output signal;

a sensor, wherein the sensor monitors the acoustic output signal;

an analog safety circuit coupled to an output of the processor; and

a first feedback loop, wherein the first feedback loop feeds the monitored acoustic signal from the sensor to the analog safety circuit;

wherein the analog safety circuit adjusts from a first level to a second level the acoustic output signal when the acoustic output signal exceeds a predetermined safety threshold such that the audio device has an output capacity that is capable of driving a sound pressure level of the acoustic output signal above the predetermined safety threshold.

9. The system according to claim 8, further comprising a second feedback loop, wherein the analog safety circuit signals the processor through the second feedback loop when the analog safety circuit adjusts the acoustic output signal from the first level to the second level.

10. The system according to claim 8, wherein the analog safety circuit causes the acoustic output signal to be attenuated such that the second level is lower than the first level.

11. The system according to claim 8, wherein the processor and the analog safety circuit return the acoustic output signal to a safety level that is below the predetermined safety threshold but higher than the second level once the acoustic output signal is adjusted to the second level.

12. The system according to claim 11, further comprising a holding circuit, wherein the holding circuit ensures that the acoustic output signal is held at least substantially at the second level for a predetermined amount of time once the acoustic output signal is adjusted to the second level.

13. The system according to claim 8, wherein when the acoustic output signal is adjusted to the second level, the processor is further programmed to further adjust the acoustic output signal to cause the acoustic output signal to move to a third level, wherein the analog safety circuit adjusts the acoustic output signal to cause the acoustic output signal to move to at least one of the second level and an intermediate level and wherein the processor is further programmed to ramp the acoustic output signal to cause the acoustic output signal to move to a safety level that is above the second level and the intermediate level but below the predetermined threshold.

14. The system according to claim 8, wherein the sensor is a microphone positioned adjacent to a speaker of the audio device.